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IS : 6675 - 1972

Indian Standard
SPECIFICATION FOR
CABLE LIFTERS FOR WINDLASSES

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SPECIFICATION FOR CABLE LIFTERS FOR WINDLASSES

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(Continued on page 2)

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Indian Standard

SPECIFICATION FOR CABLE LIFTERS FOR WINDLASSES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 18 October 1972, after the draft finalized by the Marine Engineering Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 Windlass is one of the compulsory deck equipment which has to be fitted on board ships for dropping and heaving of anchors by means of chain cables. Cable lifter is the wheel mounted on the windlass shaft provided with five snugs. When the anchor is dropped or heaved, the anchor chain links pass over the snugs on the wheel without fouling.

0.3 In the preparation of this standard, assistance has been derived from UNAV 6044 'Cable lifter with five snugs', issued by Ente Nazionale Italiano di Unificazione.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the material and dimensions for cable lifters fitted to windlasses.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Cable Lifter — Cable lifter is a special wheel with sprockets fitted on to the windlass shaft, to wind and unwind studlink or studless link chains, with kenter or 'Dee' shackles, while dropping or heaving the anchor. A cable lifter is also known as gypsy wheel, messenger wheel, cable holder or wild cat.

*Rules for rounding off numerical values (*revised*).

2.2 Nominal Size — The nominal size of the cable lifter is the diameter of the common link of the anchor chain. One cable lifter may be used for two or more diameters of anchor chain link and in such cases, the nominal size is indicated with respect to the largest diameter of common link of the anchor chain in that group.

2.3 Snugs — These are the sprockets on the cable lifter for taking the horizontal links of chain cable for positively driving it when the windlass is operated. Five snugs are generally used with each cable lifter, with the heaving angle of the anchor chain not less than 110° (see Fig. 1).

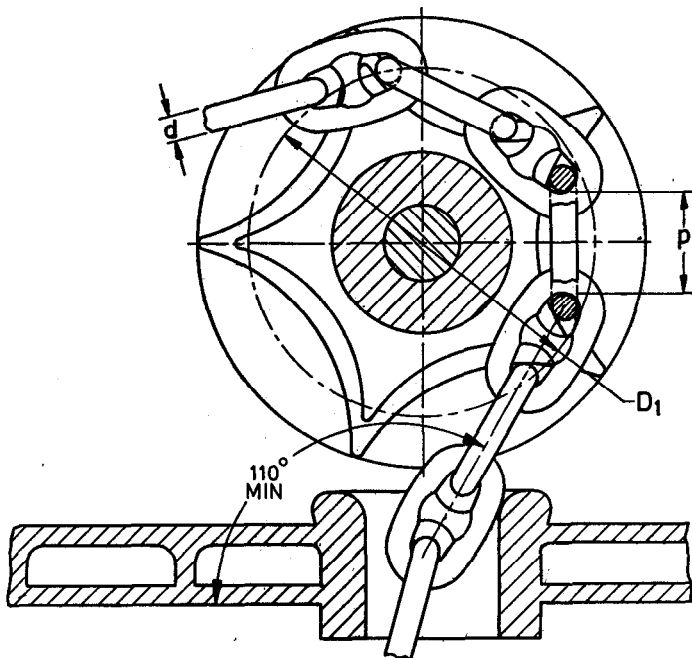


FIG. 1 CABLE LIFTER WITH FIVE SPROCKETS WITH CHAIN AND CHAIN PIPE

3. CONSTRUCTION

3.1 The cable lifters shall be bushed to run free on their shafts to enable them run freely under the control of brakes, if required. Ploughs or chain strippers should be fitted to prevent the cables jamming.

3.2 Cable lifters shall be designed to withstand safely all service loads and also the stresses that may result at the commencement of the heaving operation.

4. MATERIAL

4.1 Cable lifters shall be made of cast iron or cast steel as indicated below:

Cast steel	IS : 1030-1962* or IS : 2985-1964†	} Weldable quality
Cast iron	IS : 210-1970‡	

Grade 20 or above

5. DIMENSIONS

5.1 The dimensions of cable lifters for various nominal sizes shall be in accordance with Table 1. The dimensions are worked out for taking chain cables conforming to IS : 4484-1967§ and IS : 4692-1968||.

5.2 The dimension D_1 is given by:

$$D_1 = \frac{2p}{\sin \frac{180}{n}}$$

where

D_1 = pitch circle diameter (see Fig. 1),

p = pitch of chain (see Fig. 1), and

n = number of snugs.

6. TOLERANCE

6.1 The tolerance in millimetres on dimensions of cable lifters shall be ± 2 percent.

7. DESIGNATION

7.1 Cable lifters shall be designated by the nominal size, and the number of this standard.

Example:

A cable lifter of nominal size 43 shall be designated as:
Cable lifter 43 IS : 6675.

8. MARKING

8.1 Cable lifter shall be marked with designation on its side.

*Specification for steel castings for general engineering purposes (revised).

†Specification for steel castings for ship's structure.

‡Specification for grey iron castings (second revision).

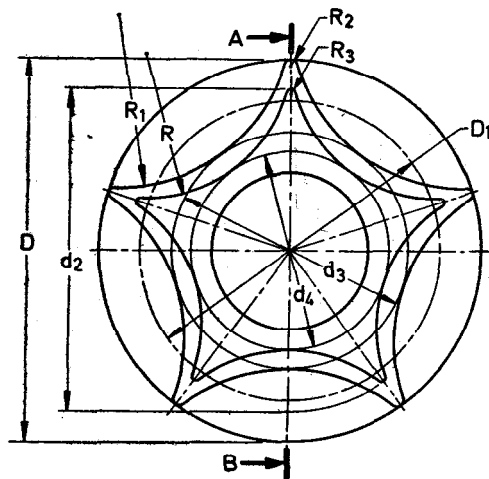
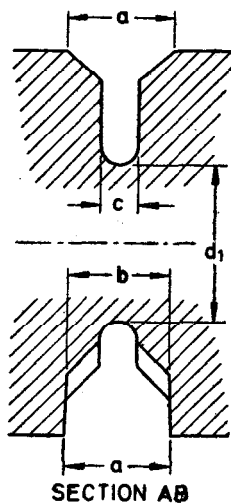
§Specification for electrically welded stud link anchor chains and attachments.

||Specification for electrically welded studless link anchor chains and attachments.

TABLE 1 CABLE LIFTER (GYPSY WHEEL)

(Clause 5.1)

All dimensions in millimetres.



NOMINAL SIZE d	$*a$ ($4.5d$ $+10$)	$*b$ ($4.3d$ $+10$)	$*c$ ($1.5d$ $+5$)	$*D$ ($D_1 +$ $3.8d$)	$*D_1$ ($13.6d$)	$*d_1$ ($7.1d$)	$*d_2$ ($D_1 + d$)	$*d_3$ ($10.7d$)	$*d_4$ ($8.9d$)	$*R$ ($6.5d$)	$*R_1$ ($7.8d$)	$*R_2$	$*R_3$	NOMINAL SIZE OF CABLE LIFTER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
12.5	66	64	24	218	170	89	182	134	111	81	97	3	3	14
14	73	70	26	244	190	99	204	150	125	91	109	3	3	14
16	82	79	29	278	218	114	234	171	142	104	125	3	3	17
17	86	83	31	296	231	121	248	182	151	110	133	3	3	17
19	96	92	33	331	258	135	277	203	169	124	148	4	3	21
21	104	100	37	365	286	149	307	225	187	136	164	5	4	21
23	114	109	40	400	313	163	358	246	205	150	179	5	4	25
25	122	118	43	435	340	178	365	268	222	156	195	6	5	25
27	132	126	46	470	367	192	394	289	240	176	211	6	5	31
29	140	135	49	505	394	206	423	310	258	188	226	7	6	31
31	150	143	52	539	422	220	453	332	276	202	242	7	6	31
33	158	152	55	574	449	234	482	353	294	214	257	7	6	43
35	168	160	58	609	476	248	511	374	312	228	273	8	6	43
37	176	169	61	644	503	263	540	396	329	240	289	8	7	43
40	190	182	66	696	544	284	584	428	356	260	312	9	7	43
43	204	195	70	748	585	305	628	460	383	280	335	10	8	43
46	217	208	74	800	626	327	672	492	409	299	359	11	9	53
48	226	216	77	835	653	341	701	514	427	312	374	11	9	53
50	235	225	80	870	680	355	730	535	445	325	390	12	9	53
53	248	238	85	922	721	376	774	567	472	344	413	12	10	53
56	262	251	89	974	762	398	818	599	498	364	437	13	10	66
58	271	259	92	1009	789	412	847	621	516	377	452	13	10	66
61	284	272	96	1061	830	433	891	653	543	396	476	14	11	66
63	294	281	100	1096	857	447	920	674	561	410	491	14	11	66
66	307	294	104	1148	898	469	964	706	587	429	515	15	12	66

*The proportions indicated are approximate.

(Continued)

TABLE 1 CABLE LIFTER (GYPSY WHEEL) — *Contd*

NOMINAL SIZE d	$*a$ ($4.5d$ + 10)	$*b$ ($4.3d$ + 10)	$*c$ ($1.5d$ + 5)	$*D$ ($D_1 +$ $3.8d$)	$*D_1$ ($13.6d$)	$*d_1$ ($7.1d$)	$*d_2$ ($D_1 + d$)	$*d_3$ ($10.7d$)	$*d_4$ ($8.9d$)	$*R$ ($6.5d$)	$*R_1$ ($7.8d$)	$*R_2$	$*R_3$	NOMINAL SIZE OF CABLE LIFTER
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
68	316	302	107	1 183	925	483	993	728	605	442	530	15	13	78
71	330	315	112	1 235	966	504	1 037	760	632	462	554	16	13	78
73	338	324	114	1 270	993	518	1 066	781	650	474	570	16	13	78
76	352	337	119	1 322	1 034	540	1 110	813	676	494	593	16	13	78
78	361	345	122	1 357	1 061	554	1 139	835	694	507	608	16	13	78
81	374	358	126	1 409	1 102	575	1 183	867	721	526	632	17	14	92
83	384	367	130	1 444	1 129	589	1 212	888	739	540	647	17	14	92
85	392	376	133	1 479	1 156	604	1 241	910	756	552	663	17	14	92
87	402	384	136	1 514	1 183	618	1 270	931	774	566	679	17	14	92
92	424	406	143	1 601	1 251	653	1 343	984	819	598	718	18	15	92
97	446	427	150	1 688	1 319	689	1 416	1 038	863	630	757	18	15	117
102	469	449	158	1 775	1 387	724	1 489	1 091	908	663	796	18	15	117
107	492	470	166	1 862	1 455	760	1 562	1 145	952	696	835	18	15	117
112	514	492	173	1 949	1 523	795	1 635	1 198	997	728	874	19	16	117
117	536	513	180	2 036	1 591	831	1 708	1 252	1 041	760	913	19	16	117
122	559	535	188	2 123	1 659	866	1 781	1 305	1 086	793	952	19	16	142
127	582	556	196	2 210	1 727	902	1 854	1 359	1 130	826	991	20	17	142
132	604	578	203	2 297	1 795	937	1 927	1 412	1 175	858	1 030	20	17	142
137	626	599	210	2 384	1 863	973	2 000	1 466	1 219	890	1 069	20	17	142
142	649	621	218	2 471	1 931	1 008	2 073	1 519	1 264	923	1 108	21	18	142
147	672	642	226	2 558	1 999	1 043	2 146	1 573	1 308	956	1 147	21	18	152
152	694	664	233	2 645	2 067	1 079	2 219	1 626	1 353	988	1 186	21	18	152

*The proportions indicated are approximate.

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